

Welcome to WAPA's Technology and Security Symposium

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Goals for today



Raise awareness



Share leading practices

Risks and costs

$$\text{Risk} = \text{Threats} \times \text{Vulnerabilities} \times \text{Impact}$$

$$\text{Cost}$$

Lowering WAPA's risk profile

- Utility operating under federal government
- Compliance with NERC standards
- Knowledge is power
- Data-driven decisions, investments



Wake-up call

Power grid cyber attacks keep the Pentagon up at night

Keeping the lights on: Is our power grid safe from attack?

How Power Grid Hacks Work, and When You Should Panic

Key issues

- Asset management
- Physical security
- Cybersecurity



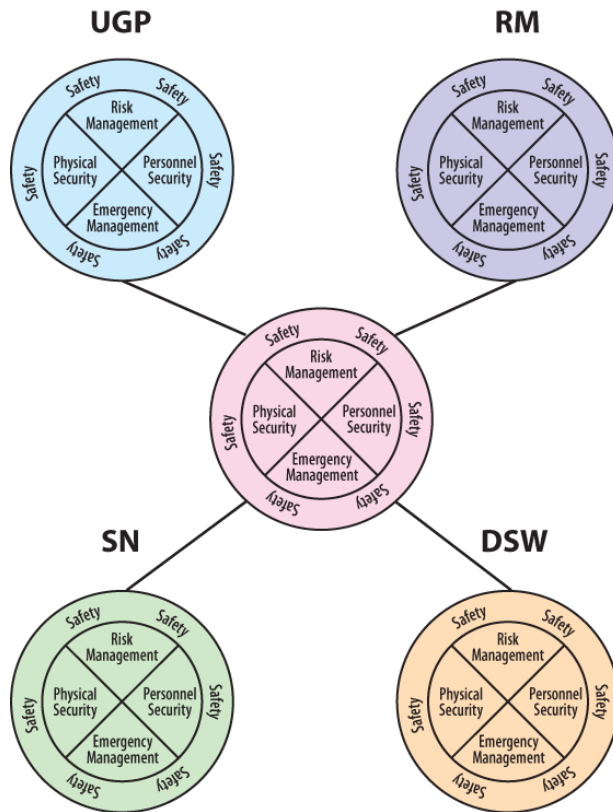
What we manage

- \$4.3 billion in assets
- 177,000 structures
- 17,360 miles of transmission line
- 316 substations
- 288 transformers
- 659 buildings
- 482 communication sites



Security evolution

Security 3 years ago



Security Today WAPA-wide



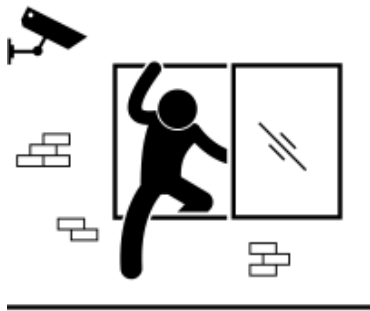
Physical security

- Continue to improve security posture
- Completed all substation assessments completed FY 2017
- 75 second-round assessments to be completed in 2018
- 37 complete as of Q3



Physical security incidents

80 incidents from 2014 – present



Cybersecurity

- Secure Enclave Systems control
- Regular scanning
- Logging events
- Alerting, patching, updating
- Partnership with DOE



Cyber attacks

WAPA defended
against
61,658,926 blocks
on its firewall
(July 2017 – May 2018)

July 2018

Source (country/region)	# firewall blocks
United States	4,282,627
China	15,176
United Kingdom	8,191
France	7,934
Chechnya	5,430
Germany	2,699
Brazil	2,419
Russia	2,072
Indonesia	1,907
Seychelles	1,800

WAPA response

- Critical Infrastructure Protections v5
 - 40,000+ hours investment
- Network Access Control
- Secure Enclave Systems Control (substations)
 - Avoid spending \$6.5M over 5 years
 - WAPA-wide solution



Maturing IT program

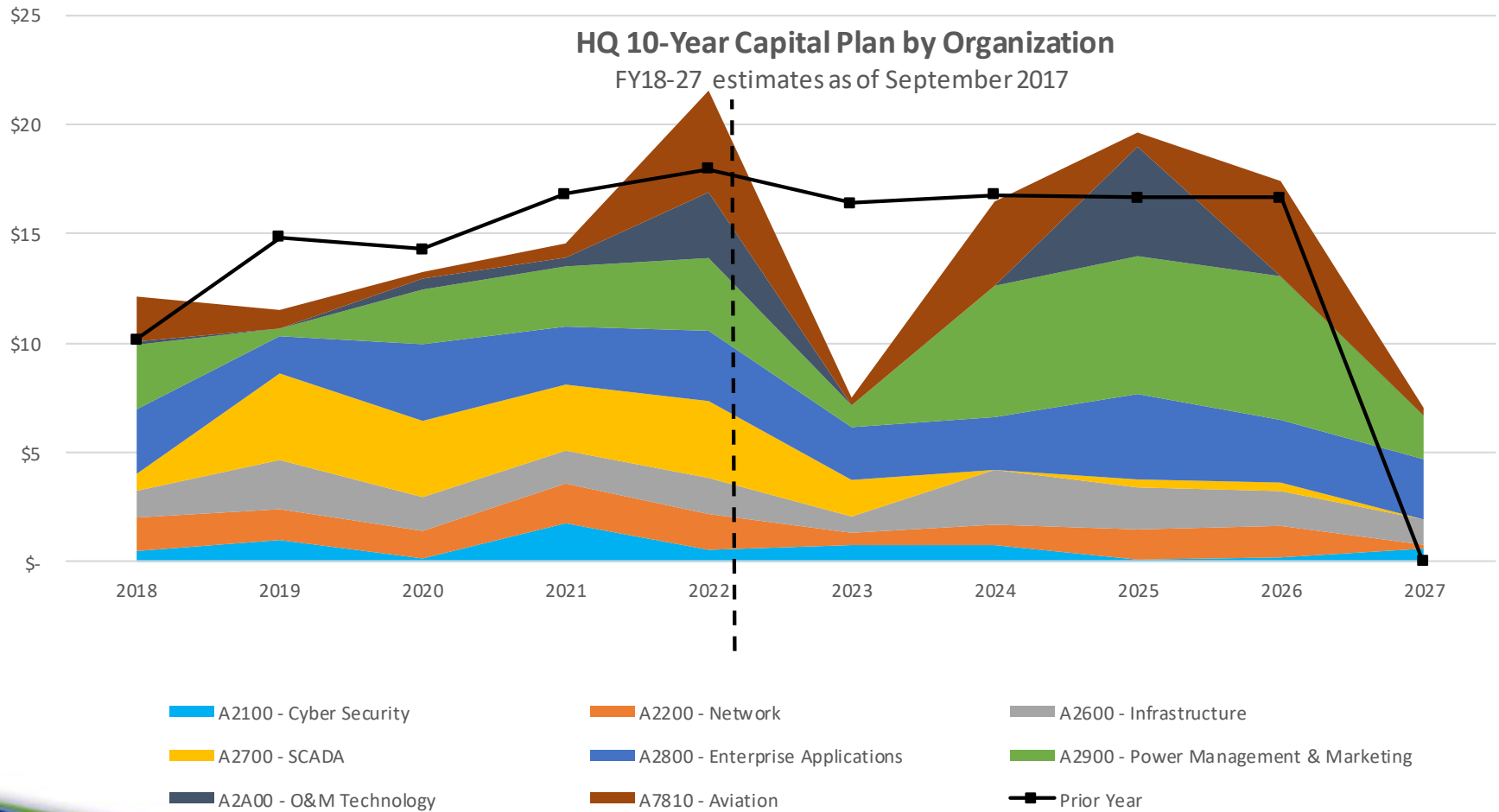
- Improving reliability through lifecycle management
- Federal overlay
- Audit load
- Increasing cyber threats
- Supply chain risk management



Technology capital investments

HQ 10-Year Capital Plan by Organization

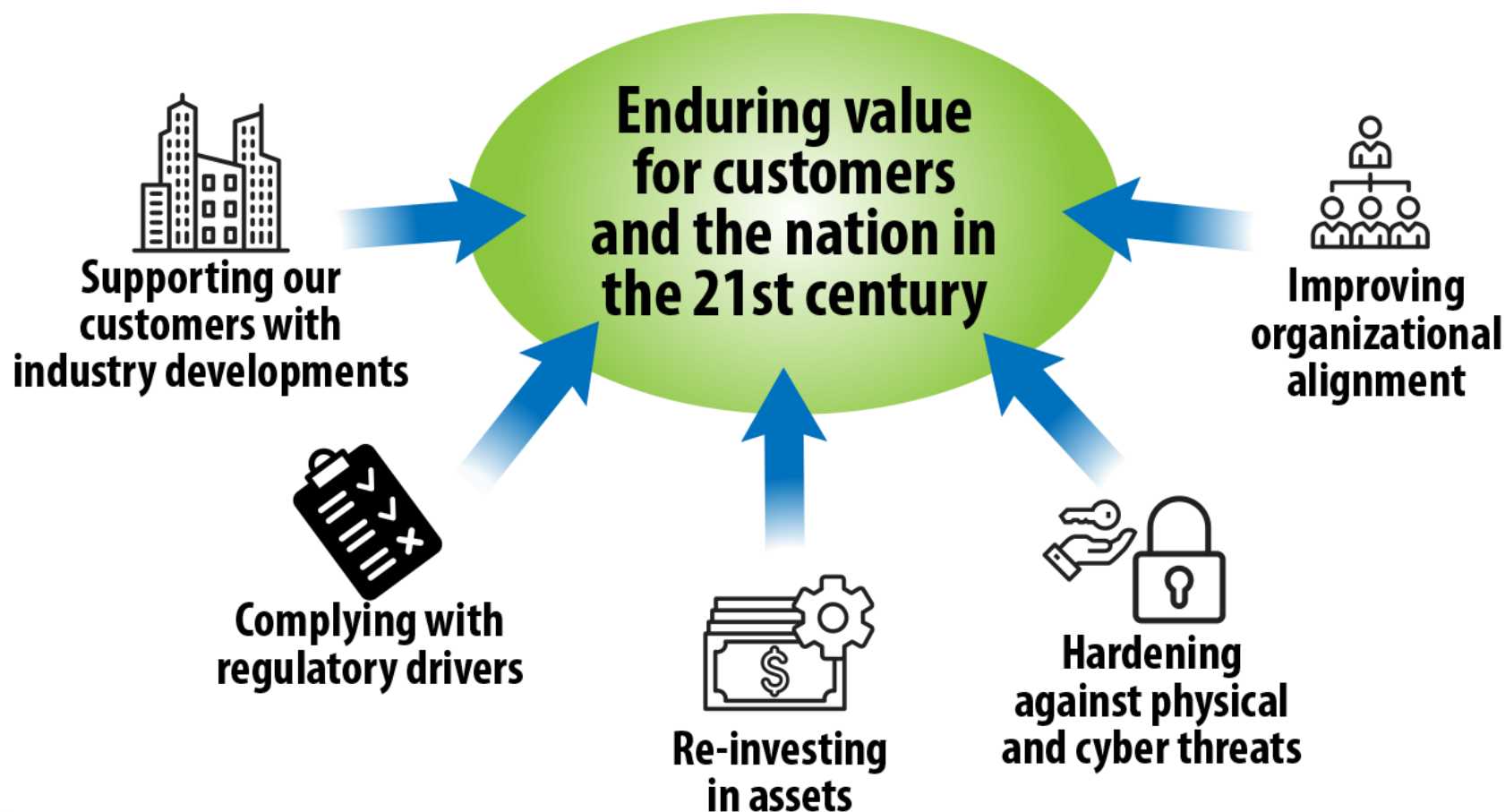
FY18-27 estimates as of September 2017



Value in all we do

Driver	Value
O&M costs	Increased resilience and reliability
Capital investments	Increased resilience and reliability
Physical and cybersecurity	Mitigated risk
Increasing regulatory requirements	Strengthened grid
Organizational realignment	Increased efficiency, cost reduction

Value in all we do



Information sharing is critical

- Secure, confidential, rapid
- Actionable
- Indemnify
- Cyber happens in milliseconds and is not regional



Key takeaway



Keep the conversation going ...

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